(No Model.)

T. A. EDISON.

CRUSHING ROLLS.

No. 567,187. Patented Sept. 8, 1896.

Fig. 1.

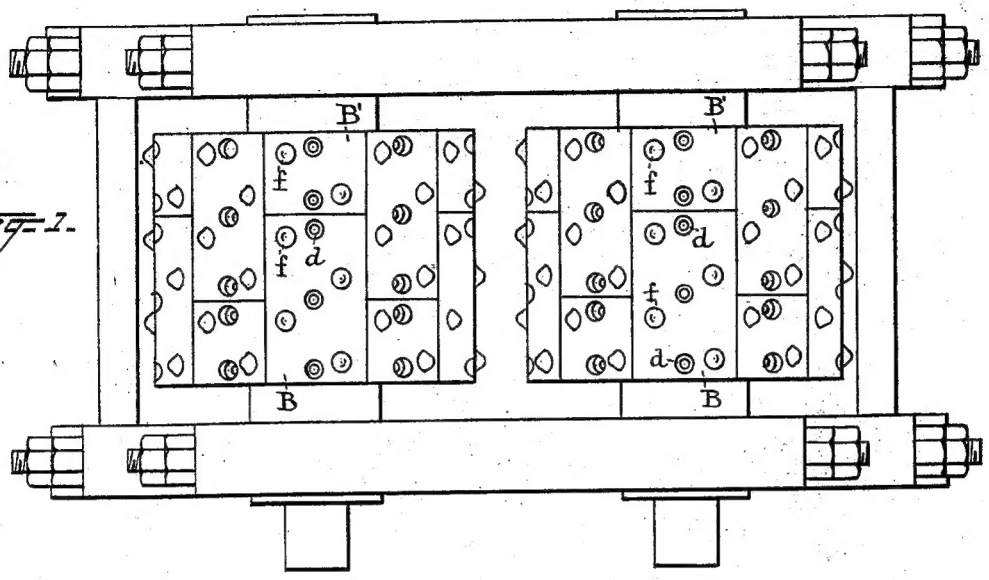
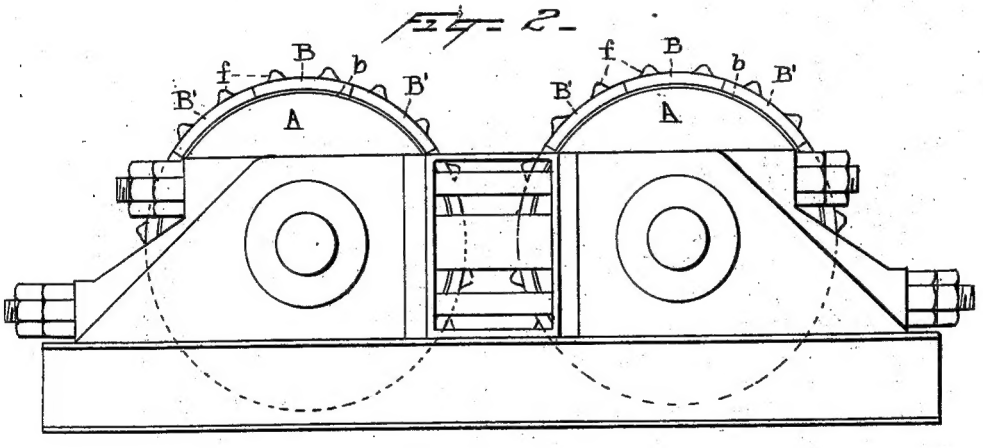


Fig. 2.



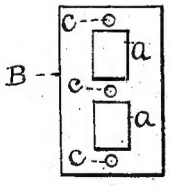


Fig. 4.

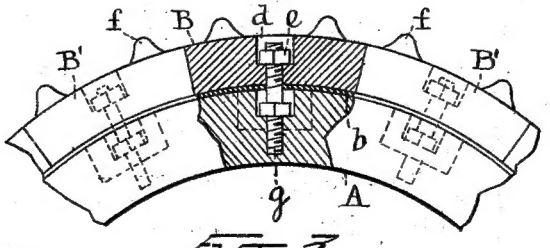


Fig. 3.

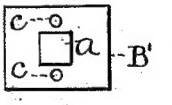


Fig. 5.

Witnesses
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UNITED STATES PATENT OFFICE.

THOMAS A. EDISON, OF LLEWELLYN PARK, NEW JERSEY.

CRUSHING-ROLL.

SPECIFICATION forming part of Letters Patent No. 567,187, dated September 8, 1896.

Application filed December 19, 1893. Serial No. 494,121. (No model.)

To all whom it may concern:

Be it known that I, THOMAS A. EDISON, a citizen of the United States, residing at Llewellyn Park, in the county of Essex and State of New Jersey, have invented a certain new and useful Improvement in Crushing-Rolls, (Case No. 966,) of which the following is a specification.

This invention relates mainly to crushing-rolls between which materials, such as ores, are passed for the purpose of crushing the same and reducing the material to pieces of a smaller size; and it relates to the construction of the rolls themselves and is designed to increase the cheapness and simplicity of construction of such rolls.

In carrying my invention into effect I construct a crushing-roll with an interior cylindrical body of suitable material and an outer separable wearing-surface, preferably composed of a number of separate parts, and I interpose between the interior cylinder and the outer wearing parts a layer or lining of comparatively soft material, such as zinc or other soft metal. With this construction the soft material yields under the pressure employed in securing the outer wearing parts to the cylinder and adapts itself to the relative shape of these parts, so that it becomes unnecessary in making the wearing parts to form them so that they accurately conform to and fit the cylinder-surface, whereby a large saving in time, trouble, and expense is made, and whereby any one of the sections of the wearing-surface may be readily replaced by another when it is worn out.

My invention is illustrated in the accompanying drawings.

Figure 1 is a plan view of a crushing-machine employing rolls embodying my invention; Fig. 2, a side elevation of the same; Fig. 3, an enlarged end view and partial section of a portion of one of the rolls, and Figs. 4 and 5 are bottom views of two different forms of wearing-shoes.

Each of the crushing-rolls shown is composed of an inner cylinder A, made of cast-iron or other suitable material. Its surface is provided with plates or shoes B B′, preferably of hardened steel and removably attached to the cylinder, so that individual shoes may be removed and replaced by others when necessary. The size and arrangement of the shoes may differ according to the dimensions of the roll. I have shown as a desirable arrangement one in which a long shoe B and a short shoe B′ are put together across the width of the roll, the adjacent pairs breaking joints with each other, as shown. Each shoe is preferably provided with one or more internal lugs or projections *a*, as shown in Figs. 4 and 5, the long shoe having two such lugs and the short shoe a single one. These lugs set into recesses in the cylinder A, as shown by the dotted lines in Fig. 3, with the object of making a more secure attachment of the parts.

The interposed lining of soft metal *b* is placed upon the surface of cylinder A, between it and shoes B B′, it being provided with apertures through which the lugs *a* pass, so that it surrounds such lugs. The lining may be a single sheet of zinc or other suitable soft metal extending around the entire cylinder, or for convenience it may be laid in sections of suitable size.

The soft metal lining or a part thereof having been placed upon the cylinder, the shoes are attached preferably in the following manner: bolts *g* are inserted in the cylinder, passing through the zinc or other lining, and the shoes are then put in position, with the bolts passing through the bolt-holes *c c* and into the recesses *d* of the shoes, and the lugs *a* entering the recesses in the cylinder, and a secure attachment is made by screwing nuts *e* on the outer ends of the bolts. The shoes may be provided with crushing nubs or projections *f f*. The rolls so constructed are to be employed in any usual or desired manner. I have shown them in Figs. 1 and 2 in position for operation mounted upon shafts and held by a suitable frame or support.

It is evident that my invention is not necessarily confined to crushing-rolls, but is adapted to other uses in which it is desired to fit upon a supporting-body a wearing-surface, and in which the same or analogous results are obtained.

What I claim is—

1. In a crushing-roll, or the like, the combination of the inner cylinder, the outer wearing-surface composed of a number of

separate shoes or plates, integral depending lugs on said plates entering sockets in the inner cylinder, and the interposed lining of comparatively soft, but inelastic material, having openings therein through which said lugs extend, substantially as set forth.

2. In a crushing-roll, or the like, the combination of the inner cylinder, the outer wearing-surface composed of a number of separate shoes or plates, integral depending lugs on said plates entering sockets in the inner cylinder, bolts for securing said shoes or plates in position, and the interposed lining of comparatively soft, but inelastic material, having openings therein through which said lugs extend, substantially as set forth.

This specification signed and witnessed this 13th day of December, 1893.

THOS. A. EDISON.

Witnesses:
JOHN F. RANDOLPH,
HARRY F. MILLER.